

Application No. 10/099,597

REMARKS

Claims 1-34 and 129-138 are pending. By this Amendment, claims 35-128 are cancelled without prejudice, and new claims 129-138 are added. The new claims are supported by the claims as filed and the specification. No new matter is introduced.

Additionally, Applicants affirm the provisional election without traverse made on October 30, 2003, to prosecute the invention of Group I, claims 1-34. Claims 1-34 currently stand as rejected. Reconsideration of the rejections in view of the following comments is respectfully requested.

Rejections Under 35 U.S.C. § 103

In the Office Action of November 11, 2003, the Examiner rejected claims 1-34 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,842,832 to Inoue et al. (the Inoue Patent) in view of U.S. Patent No. 6,268,303 to Aitken et al. (the Aitken Patent). Specifically, the Examiner asserted that "[t]he applied Inoue '832 reference discloses a collection of amorphous particles comprising non-rare earth metal/metalloid host composition and rare earth metal dopant/additive, which particle have diameters less than 500 nm. The Inoue '832 does not specifically teach that dopants may be in the form of metal." Additionally, the Examiner asserted that "Aitken '303 discloses that it is well known in the art to add rare earth metal dopant to non-rare earth metal/metalloid host composition." However, Applicants submit that there is neither motivation to combine, nor a likelihood of success in combining the references, and thus a *prima facie* case of obviousness has not been established. Applicants respectfully request reconsideration of the rejections in light of the remarks presented below.

In order to establish *prima facie* obviousness, three basic criteria must be met. "First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success.

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Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." See MPEP § 2143.

With respect to motivation to combine the references, the Inoue Patent is directed towards metal oxide particles, such as titanium dioxide, prepared by the decomposition of vaporizable metal compounds. See Inoue Patent at column 7, lines 1-15; and column 8, lines 40-50. In contrast, the Aitken Patent is directed towards a glass matrix composite which includes 4-70 wt. % silica, along with other metal compounds. See Aitken Patent at column 2, lines 59-60. More specifically, the Aitken Patent teaches the production of glass patties or layers formed by heating batch materials in a furnace, which produces a composite layer of glass material having a desired composition. In other words, the product of the Aitkin Patent is a glass layer having fine-grained crystals dispersed in the glass layer, not particles. See Aitken Patent at column 7, lines 60-61; and column 9, line 40 to column 10, line 18. Since the Inoue Patent discloses metal oxide particles, while the Aitken Patent discloses glass layers, there is no motivation to combine the references as the two patents are directed to very different materials, produced by dissimilar processes.

Additionally, as noted above, a *prima facie* case of obviousness requires a reasonable likelihood of success of obtaining the claimed invention by combining the teachings of the references. Even assuming *arguendo* that there is motivation to combine the Inoue Patent and the Aitken Patent, there is no reasonable likelihood of obtaining Applicants' claimed invention. For example, Applicants' claimed invention, as claimed in independent claim 1, relates to a collection of amorphous particles comprising non-rare earth metal/metalloid host composition and a rare earth metal dopant/additive, the collection of particles having an average primary particle diameter less than about 500 nm. The Aitken Patent does not teach how to modify the process of the Inoue patent for doping a non-rare earth metal/metalloid host composition with a rare earth metal dopant to obtain a collection of amorphous particles having an average primary

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particle size less than 500 nm. The processes of the Inoue patent are specific for a single metal, and the Aitken patent does not teach how to modify this process to maintain the particle size while introducing the dopant. The existence of doped glasses does not teach a person of skill in the art how to make the claimed submicron particles. Thus, one of ordinary skill in the art could not combine the teachings of the Inoue Patent and the Aitken Patent to produce Applicants' claimed collection of particles with a reasonable expectation of success.

Moreover, the Aitken Patent discloses melting the batch materials "at a temperature of from about 1550° C to about 1650° C from about 4 to about 16 hours to produce a glass melt," while the Inoue Patent teaches that "[t]he temperature for the decomposition should preferably be 600° C. or below" to produce the metal oxide particles. See Inoue Patent at column 7, lines 3-5; and Aitken Patent column 6, lines 22-25. Since the Inoue Patent and the Aitken Patent disclose different types of materials, i.e., metal oxide particles versus glass layers, and employ process conditions that do not overlap, there is not a reasonable likelihood of success in obtaining the claimed amorphous doped submicron particles by combining the disclosures of the Inoue Patent and the Aitken Patent.

With respect to independent claims 16 and 19, those claims relate to collections of particles comprising a metalloid oxide selected from the group consisting of B₂O₃ and TeO₂. As noted above, there is neither the motivation to combine, nor a likelihood of success in combining, the Inoue Patent and the Aitken Patent. The issues with respect to the combination of the Inoue patent and the Aitken patent are particularly true for these claims since the Inoue patent does not teach or suggest any metalloid oxide compositions. Furthermore, while the Aitken Patent discloses that the preferred glass compositions may contain boron oxides, the Aitken patent does not motivate forming a collection of particles comprising boron oxides. As such, the Examiner has not established a *prima facie* case of obviousness.

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With respect to claim 30, that claim relates to a collection of amorphous particles comprising GeO_2 . As discussed previously, there is neither the motivation to combine, nor a likelihood of success in combining, the Inoue Patent and the Aitken Patent. More specifically, the Inoue Patent does not motivate forming germanium oxide particles. Furthermore, while the Aitken Patent discloses that germanium oxide can be used as a glass former in glass ceramic compositions, the Aitken Patent does not motivate germanium oxide particle collections. Thus, the Examiner has not established a *prima facie* case of obviousness.

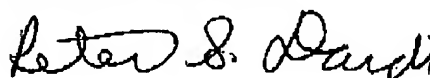
Since there is no motivation to combine the Inoue Patent and the Aitken Patent, and no reasonable likelihood of success even if the references were combined, the Examiner has not established a *prima facie* case of obviousness. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-34 under 35 U.S.C. § 103(a) as being unpatentable over the Inoue Patent in view of the Aitken Patent.

CONCLUSION

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



Peter S. Dardi, Ph.D.
Registration No.

Customer No. 24113
Patterson, Thunte, Skaar & Christensen, P.A.
4800 IDS Center
80 South 8th Street
Minneapolis, Minnesota 55402-2100
Telephone: (612) 349-5746